

WEEKDAY WONDERS



Content developed by the
Tennessee Aquarium
Education Department



TENNESSEE
AQUARIUM



STEM Around Us: Day 2

We are surrounded by science, technology, engineering, and mathematics (STEM) every day. We do not always realize the extent that they play a role in our lives, but no matter your career or hobbies, STEM is involved. The more young scientists understand about STEM, the better their critical thinking, their passion, and their interest. This week, your young scientist will have opportunities to explore the connections between STEM and the world, beginning with bird wings and flight.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the [Introduction to Weekday Wonders](#).



Question of the Day

How does STEM help animals?



Daily Nature Journal

Have your young scientist go out and complete a daily nature journal entry. Doing daily nature journaling helps people to connect with the world around them more easily. If you need additional guidance about what your young scientist should put into a daily entry, see the [Guide to Nature Journaling](#).



How Did The Chicken Cross The Road?

Write the following animals on small slips of paper and place them in a container.

- Frog
- Turtle
- Deer
- Snake
- Salamander
- Opossum
- Raccoon
- Skunk
- Squirrel
- Rabbit

Find a wide playing area and mark off an area the width of a road in your area. Choose if you have more two-lane or four-lane roads in the area and mark off 12 feet for each lane.

Tell your scientist that the animals on the slips of paper are some that are common in the United States. People have built roads through many of their habitats, so the animals sometimes need to cross the road.

Have your scientist draw one of the animals from the container. Tell him or her to move like the animal to cross the playing area and to imagine what it is like for that animal. Remind your scientist that animals like salamanders are small so even if they are able to move quickly, it will still take longer than an animal like a deer.

Ask your scientist to continue drawing animal names from the container and crossing the “road” like that animal until s/he has moved like all of the animals. Ask him or her to share their thoughts on what it might feel like for different animals to cross the road.



Strong Building

For this activity, your young scientist will need the following materials.

- straight building materials, such as dry spaghetti, straws, wooden dowels, or pencils
- material fasteners, such as marshmallows, gumdrops, or playdough
- small piece of aluminum foil
- a few coins

Have your scientist begin by fashioning a small tray out of the aluminum foil that has either a “hook” or two handles that can be twisted together to make a “basket.” The tray should be able to hold several coins when hanging on a structure.

Next, have your scientist use the building materials and fasteners to build Shape A on page 4. Have your young scientist stand the shape up and hang the aluminum foil tray on the top straight piece. Your scientist can hold the structure up on the sides but should not touch the top or fasteners. If the shape can hold the tray, have your scientist add coins, one at a time, to the tray until the structure falls apart. Have your scientist record how many coins the structure was able to hold before it fell apart.

Have your scientist repeat this process with Shape B, Shape C and Shape D, being sure to record the amount of weight it could hold before falling apart.

The goal is to find which structures are the strongest. If your scientist has other ways to build a 2 dimensional shape – you might explain it as a “wall” – that is stronger than Shapes A-D, have him or her continue to try. Remind your scientist that it is okay to hold the structure up on the sides, but not to hold it together.



Design a Wildlife Crossing

Have your scientist consider what s/he learned in the Strong Building activity. Ask him or her to design a wildlife crossing to help one or more kinds of animals get across a road. Tell your scientist that a wildlife crossing will allow animals to go over or under a road and not have to worry about traffic. At this point, your scientist should draw a plan for the crossing using the materials and fasteners s/he has been using plus paper or foil to make flat surfaces. Have your scientist add any labels or dimensions that make the plan easier to understand.



Build a Wildlife Crossing

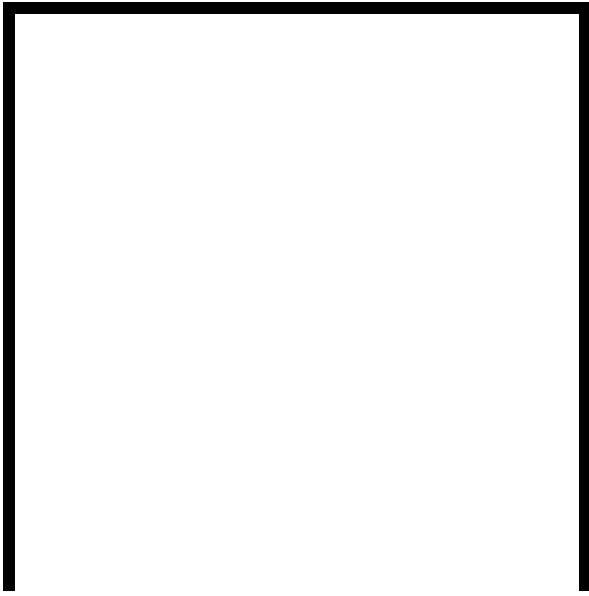
For this activity, your scientist will need the same materials as s/he had in the Strong Building activity, plus paper or foil, something to represent an animal, and something to represent a car or truck. Using the plans your scientist developed in the previous activity, he or she should build a model of the wildlife crossing.

Your scientist should then use the object representing a car or truck to demonstrate if it can still use the road with the crossing in place. Then, your scientist should use the object representing the animal to try out the wildlife crossing. S/he should make sure that the crossing will hold the animal and that the animal does not have to go up any obstacles that are too big for it. For example, a very large step would not be appropriate for a small rabbit because it might not be able to jump that high.

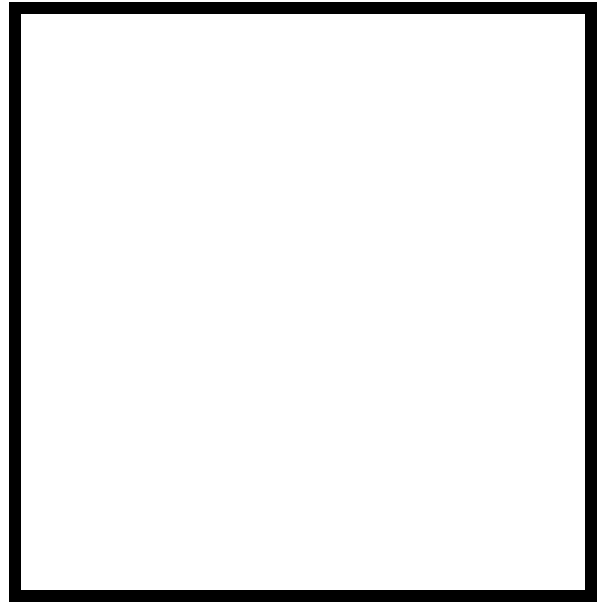
Your scientist may discover that some parts of the crossing did not work the way s/he expected them to. Have your scientist return to the drawing from the previous activity, revise the plan, and then try the new plan out with the building materials. He or she may continue to revise the plan until s/he is happy with it.

Extension: Have your scientist research wildlife crossings and their designs to learn more about how humans are solving problems to help us coexist with animals.

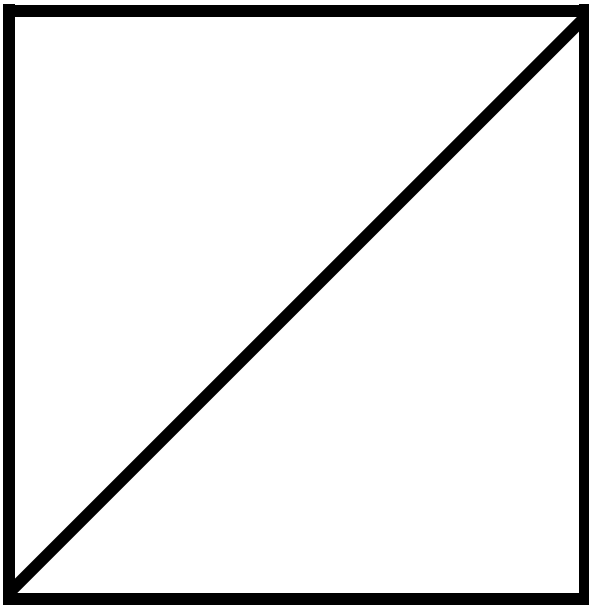
Strong Building Shapes



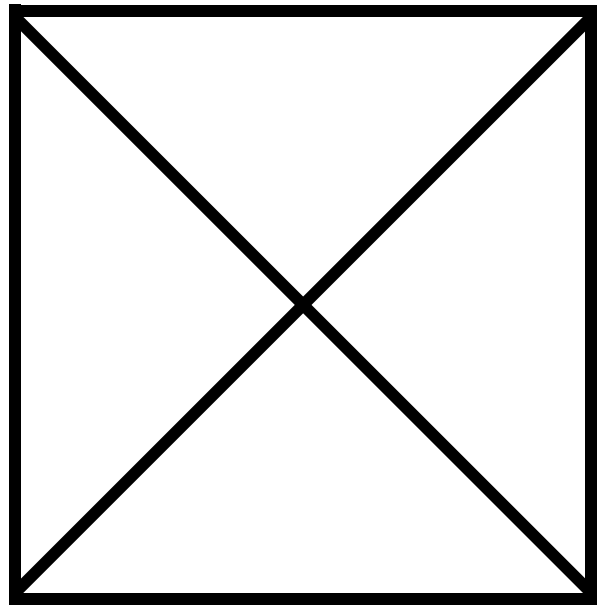
Shape A



Shape B



Shape C



Shape D